

In the Claims:

Claims 1, 6, 7, 11, 12, 14, 17, 18 and 19 are amended herein. Claims 8, 9, 10, 15 and 16 are canceled. Non-elected claims 2-5 and 20-50 are canceled. New claims 51-67 are added

1. (currently amended) A super hard and tough austenite steel bulk material with an improved corrosion resistance, comprising an aggregate of austenite nano-crystal grains containing [[a]] 0.1 to 2.0% (by mass) of nitrogen in solid-solution type nitrogen in an amount of 0.1 to 2.0% (by mass), wherein said austenite nano-crystal grains are obtained by mechanical alloying (MA) using a ball mill or the like, and wherein some amount of a metal oxide or a semimetal semi-metal oxide exists is inevitably formed on the surface of MA powder products during MA processing, acting as a crystal grain growth inhibitor between or in said nano-crystal grains, or between and in said nano crystal grains.

2-5. (canceled)

6. (currently amended) A super hard and tough austenite steel bulk material with an improved corrosion resistance, comprising an aggregate of austenite nano-crystal grains containing a solid-solution type nitrogen in an amount of 0.1 to 2.0% (by mass) [[,]] of nitrogen in solid solution, wherein said

austenite nano-crystal grains are obtained by mechanical alloying (MA) using a ball mill or the like, and wherein an amount of a metal oxide or a semi-metal oxide is inevitably formed on the surface of MA powder products during MA processing, acting as a crystal grain growth inhibitor between or in said nano-crystal grains, or between and in said nano crystal grains, and wherein at least one or two selected from the group consisting of (1) a metal oxide or a semimetal oxide, (2) a metal nitride or a semimetal nitride, (3) a metal carbide or a semimetal carbide, (4) a metal silicide or a semimetal silicide and (5) (3) a metal boride or a semimetal boride exist as a crystal grain growth inhibitor between and/or in said nano-crystal grains.

7. (currently amended) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to ~~any one of claims~~ claim 1 [[to]] or 6, wherein said austenite steel bulk material comprising an aggregate of austenite nano-crystal grains containing 0.1 to 2.0% (by mass) of ~~a solid-solution type~~ nitrogen in solid solution contains in a structure thereof ~~less than 50%~~ an amount of ferrite nano-crystal grains.

8-10. (canceled)

11. (currently amended) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion

resistance according to any one of claims 1 to 10 or 6, wherein said bulk material comprising an aggregate of austenite nano-crystal grains containing 0.1 to 2.0% (by mass) of a solid-solution type nitrogen in solid solution comprises a nitrogen-affinity metal element that has a stronger chemical affinity for nitrogen than iron, such as niobium, tantalum, manganese, and chromium, so as to prevent denitrification during a forming-by-sintering process thereof.

12. (currently amended) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to any one of claims claim 1 to 11 or 6, wherein said bulk material comprising an aggregate of austenite nano-crystal grains containing 0.1 to 2.0% (by mass) of a solid-solution type nitrogen in solid solution has a steel forming and blending composition comprising 12 to 30% (by mass) of Cr, 0 to 20% (by mass) of Ni, 0 to 30% (by mass) of Mn, 0.1 to [[5%]] 2.0% (by mass) of N and 0.02 to 1.0% (by mass) of C with the rest being substantially Fe.

13. (canceled)

14. (currently amended) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to any one of claims claim 1 to 11 or 6, wherein said bulk material comprising an aggregate of austenite

nano-crystal grains containing 0.1 to 2.0% (by mass) of a ~~solid~~-
~~solution type~~ nitrogen in solid solution has a steel forming and
blending composition comprising 4 to 40% (by mass) of Mn, 0.1 to
[[5%]] 2.0% (by mass) of N, 0.1 to 2.0% (by mass) of C and 3 to
10% (by mass) of Cr with the rest being substantially Fe.

15-16. (canceled)

17. (currently amended) The super hard and tough nano-
crystal austenite steel bulk material with an improved corrosion
resistance according to ~~any one of claims~~ claim 1 to 16 or 6,
which comprises an aggregate of austenite nano-crystal grains
containing 0.3 to 1.0% (by mass) of a ~~solid-solution type~~
nitrogen in solid solution and having a crystal grain diameter of
50 to 1,000 nm.

18. (currently amended) The super hard and tough nano-
crystal austenite steel bulk material with an improved corrosion
resistance according to ~~any one of claims~~ claim 1 to 16 or 6,
which comprises an aggregate of austenite nano-crystal grains
containing 0.4 to 0.9% (by mass) of a solid-solution type
nitrogen and having a crystal grain diameter of 75 to 500 nm.

19. (currently amended) The super hard and tough nano-
crystal austenite steel bulk material with an improved corrosion
resistance according to ~~any one of claims~~ claim 1 to 16 or 6,
which comprises an aggregate of austenite nano-crystal grains

containing 0.4 to 0.9% (by mass) of a solid-solution-type nitrogen in solid solution and having a crystal grain diameter of 100 to 300 nm.

20-50. (canceled)

51. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 7, wherein said bulk material comprising an aggregate of austenite nano-crystal grains containing 0.1 to 2.0% (by mass) of nitrogen in solid solution comprises a nitrogen-affinity metal element that has a stronger chemical affinity for nitrogen than iron, such as niobium, tantalum, manganese, and chromium, so as to prevent denitrification during a forming-by-sintering process thereof.

52. (new) (currently amended) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 7, wherein said bulk material comprising an aggregate of austenite nano-crystal grains containing 0.1 to 2.0% (by mass) of nitrogen in solid solution has a steel forming and blending composition comprising 12 to 30% (by mass) of Cr, 0 to 20% (by mass) of Ni, 0 to 30% (by mass) of Mn, 0.1 to 2.0% (by mass) of N and 0.02 to 1.0% (by mass) of C with the rest being substantially Fe.

53. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 11, wherein said bulk material comprising an aggregate of austenite nano-crystal grains containing 0.1 to 2.0% (by mass) of nitrogen in solid solution has a steel forming and blending composition comprising 12 to 30% (by mass) of Cr, 0 to 20% (by mass) of Ni, 0 to 30% (by mass) of Mn, 0.1 to 2.0% (by mass) of N and 0.02 to 1.0% (by mass) of C with the rest being substantially Fe.

54. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 7, wherein said bulk material comprising an aggregate of austenite nano-crystal grains containing 0.1 to 2.0% (by mass) of nitrogen in solid solution has a steel forming and blending composition comprising 4 to 40% (by mass) of Mn, 0.1 to 2.0% (by mass) of N, 0.1 to 2.0% (by mass) of C and 3 to 10% (by mass) of Cr with the rest being substantially Fe.

55. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 11, wherein said bulk material comprising an aggregate of austenite nano-crystal grains containing 0.1 to 2.0% (by mass) of nitrogen in solid solution has a steel forming and blending composition comprising 4 to 40% (by mass) of Mn, 0.1 to

2.0% (by mass) of N, 0.1 to 2.0% (by mass) of C and 3 to 10% (by mass) of Cr with the rest being substantially Fe.

56. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 7, which comprises an aggregate of austenite nano-crystal grains containing 0.3 to 1.0% (by mass) of a nitrogen in solid solution and having a crystal grain diameter of 50 to 1,000 nm.

57. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 11, which comprises an aggregate of austenite nano-crystal grains containing 0.3 to 1.0% (by mass) of a nitrogen in solid solution and having a crystal grain diameter of 50 to 1,000 nm.

58. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 12, which comprises an aggregate of austenite nano-crystal grains containing 0.3 to 1.0% (by mass) of a nitrogen in solid solution and having a crystal grain diameter of 50 to 1,000 nm.

59. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 14, which comprises an aggregate of austenite

nano-crystal grains containing 0.3 to 1.0% (by mass) of a nitrogen in solid solution and having a crystal grain diameter of 50 to 1,000 nm.

60. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 7, which comprises an aggregate of austenite nano-crystal grains containing 0.4 to 0.9% (by mass) of a solid-solution type nitrogen and having a crystal grain diameter of 75 to 500 nm.

61. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 11, which comprises an aggregate of austenite nano-crystal grains containing 0.4 to 0.9% (by mass) of a solid-solution type nitrogen and having a crystal grain diameter of 75 to 500 nm.

62. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 12, which comprises an aggregate of austenite nano-crystal grains containing 0.4 to 0.9% (by mass) of a solid-solution type nitrogen and having a crystal grain diameter of 75 to 500 nm.

63. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance

according to claim 14, which comprises an aggregate of austenite nano-crystal grains containing 0.4 to 0.9% (by mass) of a solid-solution type nitrogen and having a crystal grain diameter of 75 to 500 nm.

64. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 7, which comprises an aggregate of austenite nano-crystal grains containing 0.4 to 0.9% (by mass) of a nitrogen in solid solution and having a crystal grain diameter of 100 to 300 nm.

65. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 11, which comprises an aggregate of austenite nano-crystal grains containing 0.4 to 0.9% (by mass) of a nitrogen in solid solution and having a crystal grain diameter of 100 to 300 nm.

66. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 12, which comprises an aggregate of austenite nano-crystal grains containing 0.4 to 0.9% (by mass) of a nitrogen in solid solution and having a crystal grain diameter of 100 to 300 nm.

67. (new) The super hard and tough nano-crystal austenite steel bulk material with an improved corrosion resistance according to claim 14, which comprises an aggregate of austenite nano-crystal grains containing 0.4 to 0.9% (by mass) of a nitrogen in solid solution and having a crystal grain diameter of 100 to 300 nm.